Chemical Composition and Antioxidant Properties of Essential Oil of Thymus kotschyanus L. Collected from East Azarbaijan Province, Iran

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ABSTRACT

Background and Objectives: Due to their antimicrobial, anticancer and antioxidant properties (due to the presence of free radical scavengers), essential oils and extracts of medicinal plants are of great importance as natural medicinal compounds in public health, treatment of diseases, and protection of raw and processed foods .

Methods: Chemical composition and content of essential oil of Thymus kotschyanus was determined by gas chromatography–mass spectrometry. The amount of phenolic and flavonoid compounds in the essential oil was determined by spectrophotometry using gallic acid and quercetin as standards. The antioxidant properties of the essential oil were evaluated by the DPPH method.

Results: The analysis of essential oil with gas chromatography–mass spectrometry showed that thymol (51.1%), p-cymene (13.78%) and α-pinene (7.42%) are the main components. The amount of phenolic compounds was 82 ± 6.43 µg gallic acid/ml essential oil, while the flavonoid content was 30.79 ± 0.5 µg quercetin/ml essential oil. In terms of antioxidant activity, the IC50 value of T. kotschyanus essential oil was determined as 32.35 µg/ml, which is weaker than synthetic antioxidant butylated hydroxytoluen.

Conclusion: The results indicate that the essential oil of T. kotschyanus has good antioxidant activity and can be used in combination with other preservatives to protect food against a variety of oxidative systems.

Keywords: Essential Oil, Antioxidant Activity, Thymus Kotschyanus.

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